

AWK-1165C 系列

入門級 5 埠工業級 Wi-Fi 6 (802.11ax) 無線用戶端



特色與優點

- IEEE 802.11ax Wi-Fi 6 用戶端
- 可選雙頻 Wi-Fi，資料傳輸速率最高可達 1,201 Mbps
- 不限 AP 類型的毫秒級用戶端 Turbo Roaming 快速漫遊¹
- 具有 5 個乙太網路埠，簡化了網路整合
- 透過網路位址轉譯 (NAT) 輕鬆設定網路
- 內建 2.4 GHz 和 5 GHz 帶通濾波器，可實現更可靠的無線連接
- 整合式天線隔離設計可防止外部電氣干擾

認證



簡介

AWK-1165C 系列是一款多功能工業級無線 AP，其具備整合式 5 埠 Gigabit 乙太網路交換器，可以簡化行動平台的連線。此系列非常適合將單一車或機台上諸如 PLC、感測器及 HMI 這類的多個有線裝置整合至單一、可靠且具漫遊功能的無線連結，能夠降低佈線複雜性並減少安裝成本。這款用戶端使用了 Wi-Fi 6 OFDMA 與空間複用技術，即使在高密度環境中也能提供強大且高效的通訊。

AWK-1165C 系列的卓越效能源自基於用戶端的 Turbo Roaming 快速漫遊技術，可實現存取點之間毫秒級的極速切換。這項技術消除了切換過程中的封包遺失情形，因而能夠維持連續生產，並提升作業效率。其不限 AP 類型的設計能夠確保與任何品牌的 Wi-Fi 存取點之間無縫互通，使系統彈性達到最高。

客製化工業級無線網路技術

- 基於用戶端的 Turbo Roaming 快速漫遊，支援不限 AP 類型實現無縫漫遊，¹ 在 AP 間的漫遊復原時間小於 150 毫秒
- 802.11r Fast Roaming 快速漫遊能夠實現更快速、更可靠的 Wi-Fi 用戶端漫遊，並提升與第三方裝置的互通性
- DFS 頻道支援提供更廣泛的 5 GHz 頻道範圍，避免現有無線基礎設施的干擾
- 通用 (UN) 型號，具有可配置的國家設定，可實現更加靈活的全球部署
- 專用的 MXview 無線網路管理軟體，具備動態拓撲視圖、互動式漫遊記錄播放功能，以及詳細的裝置資訊與效能指標圖表
- 針對用戶端運作模式的 SSID 功能進行故障排除時，若連線到 AP 以執行無線診斷，系統會啟動一個臨時 SSID
- 最新的 WPA3 加密技術可增強無線網路安全性
- -40 至 75°C 的寬廣操作溫度 (-T) 型號可在惡劣環境中提供順暢的無線通訊

工業合規性與認證

- 已通過 CC-Link IE TSN 認證，具備將無線裝置整合到先進工廠自動化網路所必需的時間敏感效能
- 符合 EN 18031-1 標準，確保符合歐盟法規並增強對網路威脅的防護能力

規格

WLAN Interface

WLAN Standards	2.4 GHz: 802.11ax with 1024 QAM support, 20/40 MHz 5 GHz: 802.11ax with 1024 QAM support, 20/40/80 MHz WMM for QoS
Frequency Band for US (20 MHz operating channels)	AWK-1165C-US models only: 2.412 to 2.462 GHz (11 channels)

1. 此處所指的 Turbo Roaming 快速漫遊復原時間是在最佳狀態下，配置無干擾 20 MHz RF 頻道、WPA2-PSK 安全性和預設的 Turbo Roaming 快速漫遊參數，所得到的測試結果平均值。用戶端設定為在 100 Kbps 流量負載下 3 個頻道漫遊。其他情況也有可能影響漫遊的效能。若想了解更多關於 Turbo Roaming 快速漫遊的參數設定，請參閱產品手冊。

	5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) ² 5.500 to 5.700 GHz (11 channels) ² 5.745 to 5.825 GHz (5 channels)
Frequency Band for UN (20 MHz operating channels)	AWK-1165C-UN models only: 2.412 to 2.472 GHz (13 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) ² 5.500 to 5.700 GHz (11 channels) ² 5.745 to 5.825 GHz (5 channels) Available channels change depending on the selected country or region code.
Wireless Security	WPA/WPA2/WPA3-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2/WPA3-Personal
Wireless Roaming	Turbo Roaming ³ 802.11r
Transmission Rate	2.4 GHz: Up to 573.5 Mbps 5 GHz: Up to 1,201 Mbps
Transmitter Power for 802.11a (Dual Chain)	21±1.5 dBm @ 6 Mbps 21±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (5 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS7 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS8 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS9 40 MHz 21±1.5 dBm @ MCS0 80 MHz 21±1.5 dBm @ MCS9 80 MHz
Transmitter Power for 802.11ax (Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 20±1.5 dBm @ MCS11 20 MHz 21±1.5 dBm @ MCS0 40 MHz 20±1.5 dBm @ MCS11 40 MHz 21±1.5 dBm @ MCS0 80 MHz 20±1.5 dBm @ MCS11 80 MHz
Transmitter Power for 802.11b (Dual Chain)	21±1.5 dBm @ 1 Mbps 21±1.5 dBm @ 11 Mbps
Transmitter Power for 802.11g (Dual Chain)	21±1.5 dBm @ 6 Mbps 21±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS7 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS8 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ax (2.4 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS11 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS11 40 MHz

2. 支援 DFS (動態頻率選擇) 頻道：在 AP 模式下，當設備偵測到一個雷達信號，會自動切換到另一個頻道。然而，根據規定，當頻道切換後，若要重啟服務，需要 60 秒的可用性檢查期。
3. 此處所指出的快速漫遊復原時間是在最佳化條件下記錄的平均測試結果，其中包含無干擾的 20 MHz RF 頻道、WPA2-PSK 安全性和預設快速漫遊參數。用戶端設定為在 100 Kbps 流量負載下 3 個頻道漫遊。其他情況也有可能會影響漫遊的效能。若想了解更多關於 Turbo Roaming 快速漫遊的參數設定，請參閱產品手冊。

Receiver Sensitivity for 802.11a	Typ. -88 dBm @ 6 Mbps Typ. -72 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (5 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -84 dBm @ MCS0 40 MHz Typ. -68 dBm @ MCS7 20 MHz Typ. -66 dBm @ MCS7 40 MHz
Receiver Sensitivity for 802.11ac (5 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -65 dBm @ MCS8 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -60 dBm @ MCS9 40 MHz Typ. -81 dBm @ MCS0 80 MHz Typ. -55 dBm @ MCS9 80 MHz
Receiver Sensitivity for 802.11ax (5 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -59 dBm @ MCS11 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -56 dBm @ MCS11 40 MHz Typ. -81 dBm @ MCS0 80 MHz Typ. -52 dBm @ MCS11 80 MHz
Receiver Sensitivity for 802.11b	Typ. -96 dBm @ 1 Mbps Typ. -88 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g	Typ. -90 dBm @ 6 Mbps Typ. -74 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -70 dBm @ MCS7 20 MHz Typ. -69 dBm @ MCS7 40 MHz
Receiver Sensitivity for 802.11ac (2.4 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -66 dBm @ MCS6 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -63 dBm @ MCS9 40 MHz
Receiver Sensitivity for 802.11ax (2.4 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -59 dBm @ MCS11 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -56 dBm @ MCS11 40 MHz
WLAN Operation Mode	Client Client-Router Slave Sniffer
Antenna	External, 2/2 dBi Omni-directional
Antenna Connectors	2 RP-SMA female

Ethernet Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3az for Energy-Efficient Ethernet IEEE 802.1Q for VLAN Tagging IEEE 802.1X for authentication
10/100/1000BaseT(X) Ports (RJ45 connector)	5

Ethernet Software Features

Management	DHCP Server DHCP Client DNS HTTP IPv4/IPv6 LLDP SMTP SNMPv1/v2c/v3 Syslog TCP/IP Telnet UDP VLAN MXconfig MXview One MXview Wireless Turbo Roaming Analyzer
Routing	Port forwarding Static Route NAT
Security	HTTPS/SSL RADIUS SSH Certificate Management
Time Management	SNTP Client

Firewall

Filter	ICMP MAC address IP protocol Port-based Wi-Fi ACL
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Serial Interface

Console Port	RS-232 8-pin RJ45
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USB Interface

Storage Port	USB Type A (for ABC-02 only)
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LED Interface

LED Indicators	PWR, WLAN, SYSTEM
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Input/Output Interface

Buttons	Reset button
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Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions	AWK-1165C models: 60 x 100 x 53 mm (2.36 x 3.94 x 2.09 in) AWK-1165C-T models: 60 x 100 x 66 mm (2.36 x 3.94 x 2.60 in)
Weight	AWK-1165C models: 428.5 g (0.94 lb) AWK-1165C-T models: 516.5 g (1.14 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit)

Power Parameters

Input Current	9 to 30 VDC, 1.57 to 0.47 A
Input Voltage	9 to 30 VDC
Power Connector	1 removable 3-contact terminal block(s)
Power Consumption	14 W (max.)

Environmental Limits

Operating Temperature	Standard models: -25 to 60°C (-13 to 140°F) Wide temp. models: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 61000-6-2/-6-4 EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V/m IEC 61000-4-8 PFMF: 30 A/m
Road Vehicles	E mark E1
Medical	IEC 60601
Safety	IEC 62368-1 UL 62368-1
Cybersecurity	EN 18031-1
Vibration	IEC 60068-2-6
Radio	EN 300 328, EN 301 489-1/17, EN 301 893, FCC, MIC, NCC, RCM, SRRC, WPC, KC, NBTC, IC

MTBF

Time	4,002,106 hrs
Standards	Telcordia Standard SR-332

Warranty

Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

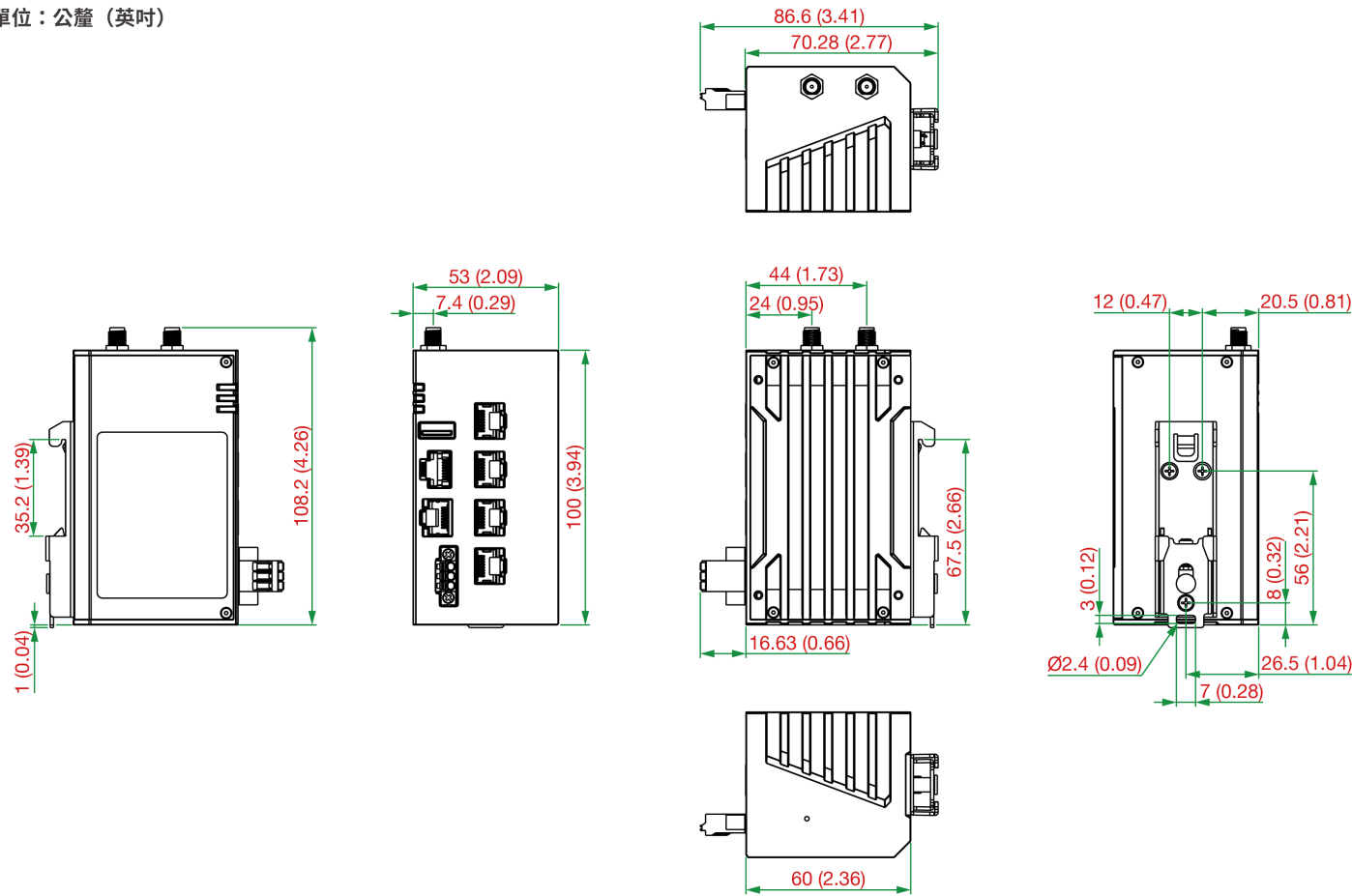
Package Contents

Device	1 x AWK-1165C Series wireless client
Installation Kit	1 x DIN-rail kit
Antenna	2 x 2.4/5 GHz antenna
Documentation	1 x quick installation guide 1 x warranty card

尺寸

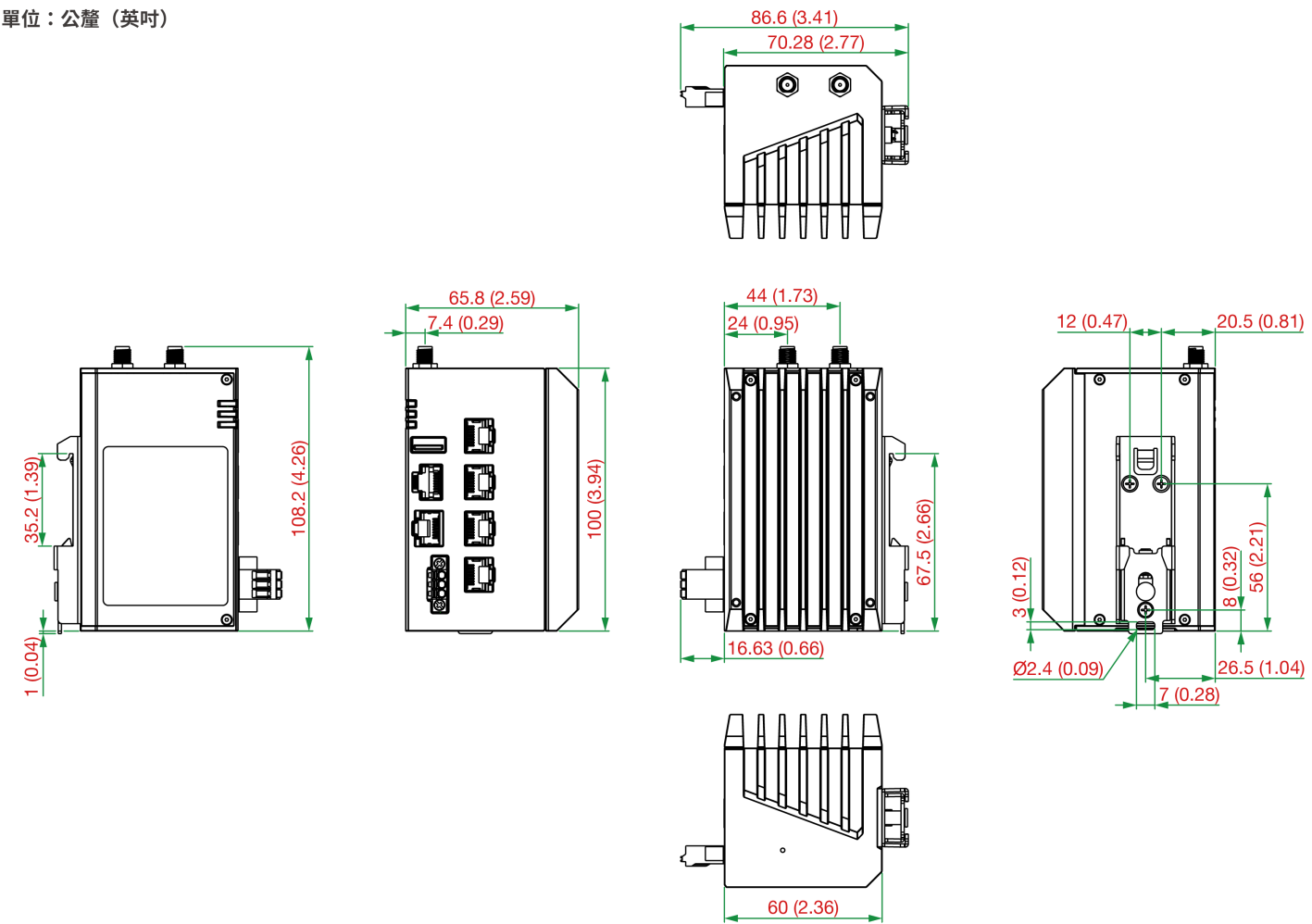
標準型號

單位：公釐（英吋）



寬溫 (-T) 型號

單位：公釐（英吋）



訂購資訊

Model Name	Band	Standards	Operating Temp.
AWK-1165C-UN	UN	802.11ax (Wi-Fi 6)	-25 to 60°C
AWK-1165C-UN-T	UN	802.11ax (Wi-Fi 6)	-40 to 75°C
AWK-1165C-US	US	802.11ax (Wi-Fi 6)	-25 to 60°C
AWK-1165C-US-T	US	802.11ax (Wi-Fi 6)	-40 to 75°C

配件（選購）

Antennas

ANT-WSB-PNF-12-02	12 dBi at 2.4 GHz, N-type (female), single-band directional antenna
ANT-WSB5-PNF-16	16 dBi at 5 GHz, N-type (female), single-band directional antenna
ANT-WDB-ONM-0707	07 dBi at 2.4 GHz and 07 dBi at 5 GHz, N-type (male), dual-band omnidirectional antenna
ANT-WDB-PNF-1011	10 dBi at 2.4 GHz and 11 dBi at 5 GHz, N-type (female), dual-band directional antenna
ANT-WDB-ONF-0709	7 dBi at 2.4 GHz or 9 dBi at 5 GHz, N-type (female), dual-band, omnidirectional antenna
ANT-WDB-ANM-0306	3 dBi at 2.4 GHz or 6 dBi at 5 GHz, N-type (male), omnidirectional antenna
ANT-WDB-ARM-02	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male) omnidirectional rubber-duck antenna
ANT-WDB-ARM-0202	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male), dual-band, omnidirectional antenna
ANT-WSB-AHRM-05-1.5m	5 dBi at 2.4 GHz, RP-SMA (male), omnidirectional/dipole antenna, 1.5 m cable
MAT-WDB-CA-RM-2-0205	2.4/5 GHz, ceiling antenna, 2/5 dBi, MIMO 2x2, RP-SMA-type (male)

MAT-WDB-DA-RM-2-0203-1m	2.4/5 GHz, desktop antenna, 2/3 dBi, MIMO 2x2, RP-SMA-type (male), 1 m cable
MAT-WDB-PA-NF-2-0708	2.4/5 GHz, panel antenna, 7/8 dBi, MIMO 2x2, N-type (female)
ANT-WDB-ANM-0502	5 dBi at 2.4 GHz or 2 dBi at 5 GHz, N-type (male), omnidirectional antenna

Wireless Antenna Cables

A-CRF-RFRM-R5-60	Wireless antenna cable with RP-SMA (female) to RP-SMA (male) connectors, RG-402 type, 0.6 m
A-CRF-RFRM-R4-150	Wireless antenna cable with RP-SMA (female) to RP-SMA (male) connectors, magnetic base, RG-174 type, 1.5 m
A-CRF-RMNM-L1-300	N-type (male) to RP SMA (male) LMR-195 Lite cable, 3 m
A-CRF-RMNM-L1-600	N-type (male) to RP SMA (male) LMR-195 Lite cable, 6 m
A-CRF-RMNM-L1-900	N-type (male) to RP SMA (male) LMR-195 Lite cable, 9 m

Surge Arrestors

A-SA-NMNF-02	0 to 6 GHz, N-type (male) to N-type (female) surge arrester
A-SA-NFNF-02	0 to 6 GHz, N-type (female) to N-type (female) surge arrester

Wireless Terminating Resistors

A-TRM-50-NM	50-ohm termination resistor with N-type male connector
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Wall-Mounting Kits

WK-56-01	Wall-mounting kit with 2 plates (56 x 33.3 x 2 mm) and 4 screws
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